2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The US Army Garrison Fort Belvoir proposes to outgrant 1.322 acres (0.535 ha) of land to the Virginia Department of Transportation (VDOT) for the widening of US 1. This chapter describes the proposed action and alternatives that were considered in evaluating this EA.

?? **Proposed Action – VDOT Alternative A**
The project would require the widening a 0.477-mile (0.768-km) segment of US 1 and the realignment of the northern 0.156 mi (0.251 km) segment of Old Colchester Road (OCR) to: 1) provide northbound through traffic an unobstructed path onto the northbound lane Telegraph Road; and 2) provide dedicated left and right turn lanes. For the entire site area, Fort Belvoir would outgrant a permanent easement of 0.770 acres (0.3122 ha) and a temporary construction easement of 0.552 acres (0.223 ha).

?? **Alternatives to the Proposed Action:**
In addition to the Proposed Action and No Action Alternative, three alternatives were developed to lessen the disturbance to Fort Belvoir property and decrease the amount of right-of-way required on OCR.

- **Alternative I – four lanes with a short queue / taper length with no wall.** This alternative has four lanes with curbs and gutter, rustic guardrails and normal 2:1 grading on the fill supporting the road.
- **Alternative II – three lanes with a short queue / taper length with no wall.** This alternative has three lanes with a teardrop center median, curbs and gutter, rustic guardrails and normal 2:1 grading on the fill supporting the road.
- **Alternative III – three lanes with a short queue / taper length with a wall.** This alternative has three lanes with a teardrop center median, curbs and gutter, rustic guardrails and a 226-foot (69-m) long, 18-foot (5.5-m) high concrete retaining wall on the eastern side of OCR.

?? **No Action Alternative** – US Army Garrison Fort Belvoir would not outgrant any acreage to widen US 1 or the subsequent realignment of OCR.

2.1 Proposed Action

Fort Belvoir proposes to outgrant 1.322 acres (0.535 ha) of land to VDOT along the south side of US 1 and the east side of OCR. A permanent right of way easement would consist of 0.770 acres (0.3122 ha) for the VDOT right of way for the road and storm drainage facilities. A temporary construction easement would consist of 0.552 acres (0.223 ha) for clearing and grading outside the permanent easement.

The permanent easement would consist of 0.252 acres (0.1022 ha) along US 1 and 0.518 acres (0.21 ha) along OCR. The temporary construction easement would consist of 0.338 acres (0.1368 ha) along US 1, and 0.214 acres (0.09 ha) along OCR. The proposed property outgrant along the south side of US 1 and the east side of OCR varies in width and area of disturbance. The maximum width of disturbance (permanent plus temporary construction easement) along the south side of US 1 would be 49 feet (15 m), occurring near the eastern terminus of the proposed outgrant acreage. The maximum width of disturbance along the east side of OCR is 87 feet (26 .5 m), occurring at 298 feet (91 m) south of the OCR / US 1 intersection.

US 1 Segment

Within the site area, US 1 is a four-lane undivided, open shoulder highway that is unable to adequately handle commuter traffic during the peak hours of 7 a.m. to 9 a.m. and 3 p.m. to 6 p.m. VDOT proposes to widen US 1 to six lanes, which would extend 1.121 miles (1.8 km) from 0.075 miles (0.12 km) south of Lorton Road to 0.477 miles (0.768 km) east of OCR.

The proposed US 1 site area would have four westbound lanes and three eastbound lanes between Telegraph Road and Belvoir Woods Parkway (BWP), tapering to four lanes to the eastern terminus of the site area. A 14.5 to 26-foot (4.4 to 7.9-m) wide center median and a 9.8-foot (2.9-m) multi-purpose trail along the westbound lane would be constructed between Telegraph road and BWP, with closed curb and gutter sections along both sides of US 1. An open shoulder section with roadside drainage will be constructed east of BWP with no multi-purpose trail, sidewalk, or median to the eastern terminus of the site area.

At its signalized intersection with Telegraph Road, US 1 would have three eastbound and four westbound through lanes and single right-turn and left-turn lanes in both directions. At its intersection with BWP, US 1 would have three eastbound and three westbound lanes with a single westbound right-turn lane. By design, the non-signalized BWP / US 1 intersection only allows westbound US 1 traffic to access BWP. There is no eastbound US 1 access onto BWP.

At the Telegraph Road / US 1 intersection, Telegraph Road would have six southbound lanes (five turn lanes and a through lane). It would have two northbound lanes with a 7.2-foot (2.2 m) median separating the northbound and southbound lanes. Curb and gutter sections and sidewalks occur on both sides of Telegraph Road.

Old Colchester Road (OCR) Segment

At the OCR / US 1 intersection (Figure 2-1), VDOT has designed OCR with four lanes: a single southbound lane and three dedicated northbound lanes for left-turn, through and right-turn traffic. OCR begins to taper from four down to two lanes approximately 246 feet (75 m) south of the US 1 intersection with the taper continuing south another 403 feet (123 m).

To allow for proper alignment with Telegraph Road at the US 1 intersection, the southbound lane of OCR would be moved eastward the full project length of 822 feet (251 m) south OCR / US 1

intersection. The west road edge, or southbound lane side of OCR would shift as much as 9 feet (2.7 m) with the greatest shift at 16 feet (5 m) south of the OCR / US 1 intersection. Impacts to US Army property would occur only along the east road edge, or northbound lane side. According to VDOT's plan the following would have:

- ?? A single southbound lane with no center median.
- ?? The western edge of pavement on OCR would move eastward as much as 9 feet (2.6 m).
- ?? An eastward shift of the current east pavement edge to a maximum of 36 feet (11 m) at a point of 180 feet (55 m) south of the OCR / US 1 intersection.
- ?? A 308-foot (94-m) long, 2.25-foot (0.6-m) wide curb and gutter section occurring on both sides of the road with no sidewalks.
- ?? An open ditch section for an additional 514 feet (157 m) south to the southern terminus of the site area. This 50-foot (15.4-m) wide roadbed would be uncurbed with gravel shoulders.
- ?? A 2:1 graded slope to accommodate the 15 to 18-foot (4.5 to 5.5-m) drop in elevation along the east edge of OCR.
- ?? A replacement of current standard metal guardrails along the east with "rustic" guardrails, which would be weathering W-shaped steel guardrails bolted to round 8-inch (20-cm) diameter Southern Pine wood posts. These guardrails would extend for 566 feet (172.5 m) south of the OCR / US 1 intersection.
- ?? Signal equipment at the OCR / US 1 intersection would be painted Bradford Brown, which is a dark matte brown finish that would complement existing signage.

In planning this project, VDOT has taken measures to minimize the physical and visual impacts to Pohick Episcopal Church, a property listed on the National Register of Historic Places (NRHP), and to OCR. Improvements would occur the east side of OCR to eliminate impacts to Pohick Church. The church buildings, adjacent cemetery, and parking lot, which lie west of the OCR / US 1 intersection will not suffer impacts from the Proposed Action (VDOT, 1999 and URS, 2003).

In response to concerns expressed by Fort Belvoir and consulting parties, proposed improvements were designed to have no adverse effect on Old Colchester Road (URS, 2003). During construction, VDOT and the Federal Highway Administration FHWA) would periodically consult with Virginia Department of Historic Resources (VDHR) on material and design issues. VDHR would be provided subsequent design plans during plan development. Should further modifications to the design become necessary, VDOT would consult VDHR directly to determine if these could lead to an adverse effect (URS, 2003).

2.2 Alternatives to the Proposed Action

In addition to the Proposed Action and the No Action Alternative, alternatives to lessen the disturbance to Fort Belvoir property and to decrease the amount of right-of-way required on OCR have been identified. These are designated as Alternative I, Alternative II, and Alternative III in this document. All three alternatives would meet VDOT goals with the traffic patterns and major features being similar to the Proposed Action discussed above.

In Alternatives I-III, OCR would remain as a scenic two-lane rural road except for the widening of the last 250 feet (76.2 m). This stretch of OCR northbound lane would have a 150-foot (45.7-m) queue length with a 100-foot (30.5-m) taper. These dimensions are based on current AASHTO design standards for speeds less than 35 miles (56.4 km) per hour for a total proposed queuing length of 250 feet (76.2 m) or 12.5 cars (Subchapter 3.10.2.3). For Alternatives II and III a 3.28-foot (1-m) wide teardrop center median would separate the northbound and southbound lanes and would guide northbound through traffic into the proper northbound lane on Telegraph Road (Table 2-1). Under Alternatives I, II, and III, the western pavement edge of OCR would remain as it currently exists.

2.2.1 Alternative I – 4 lanes, 250-foot (76.2-m) Queue and Taper.

Alternative I (Figure 2-2) would:

- ?? Provide three dedicated northbound lanes at the OCR / US 1 intersection for left-turn, through and right-turn traffic.
- ?? Provide curb and gutter, rustic guardrails and 2:1 grading on the fill supporting the new road alignment.
- ?? Reduce outgrant area by 50 percent to 0.37 acres (0.150 ha).

2.2.2 Alternative II – 3 lanes, 250-foot (76.2-m) Queue and Taper.

Alternative II (Figure 2-3) would:

- ?? Provide two northbound lanes: a combined left-turn and through lane and a dedicated right-turn lane.
- ?? Provide a 3.28-foot (1-m) wide teardrop center median, curb and gutter, rustic guardrails and 2:1 grading on the fill supporting the new road alignment.
- ?? Reduce the width of disturbance to 70 feet (21.4 m).
- ?? Reduce outgrant area by 61 percent to 0.289 acres (0.117 ha).

2.2.3 Alternative III – 3 lanes, 250-foot (76.2-m) Queue and Taper and Retaining Wall.

Alternative III (Figure 2-4) would:

- ?? Provide two northbound lanes: a combined left-turn and through lane and a dedicated right-turn lane.
- ?? Provide a 3.28-foot (1-m) wide teardrop center median, curb and gutter, and rustic guardrails.
- ?? Construct a 226-foot (69-m) long, approximately 18-foot (5.5-m) high retaining wall on the eastern side of OCR to minimize fill required.
- ?? Reduce width of disturbance to 61 feet (18.6 m).
- ?? Reduce outgrant by 65 percent to 0.252 acres (0.102 ha).

Table 2-1
Comparison of Proposed Action and Alternatives[1]

	North-bound lanes	Retaining wall	Median	Length of construction [2]	Maximum Width of Disturbance[3]	Total Area Disturbed[4]	Percent reduction[5]
Proposed Action	3: left, thru, right	None	None	822 feet (251 m)	87 feet (26.5 m)	0.732 acres (0.30 ha)	----------
Alternative I	3: left, thru, right	None	Yes	250 feet (76.2 m)	‘’	0.37 acres (0.150 ha)	50%
Alternative II	2: combined left & thru, right	None	Yes	“	70 feet (21.4 m)	0.289 acres (0.117 ha)	61%
Alternative III	2: combined left & thru, right	Yes	Yes	“	61 feet (18.6 m)	0.252 acres (0.102 ha)	65 %

[1] Dimensions along OCR.
[2] Proposed southern terminus of construction.
[3] Width of disturbance represents land area required for clearing and grading.
[4] Total area disturbed both permanent and temporary construction easements along OCR.
[5] Percent reduction of outgrant along OCR compared to the Proposed Action.

Under Alternative III, a retaining wall would extend from the road surface down to the existing natural grade. The purpose of the wall would be to decrease the amount of adjacent forested area required to be filled to support the newly widened roadway. The wall would extend horizontally from the OCR/US 1 intersection to a point approximately 285 feet (86.9 m) south of US 1. There would be no structures visible from OCR higher than the new rustic guardrails. Alternative III

would significantly reduce the impacts to the aesthetics and cultural heritage of OCR and to natural resources of the US Army Garrison Fort Belvoir.

2.3 No Action Alternative

Under the No Action Alternative, the US Army Garrison Fort Belvoir would not outgrant land to VDOT for widening US 1 or realignment of OCR.

Under the No Action Alternative, it is likely that VDOT could not widen US 1 for the 0.477 miles (0.768 km) segment along the Fort Belvoir boundary and could not realign OCR. Thus, traffic volume along US 1 would continue to increase and traffic congestion and the potential for accidents would be heightened.

OCR would remain a rural two-lane road and the signalized traffic light would continue to control all three traffic patterns (left turn, through, and right turn) from a single northbound lane. The safety hazard due to the misalignment of northbound OCR through traffic onto northbound Telegraph Road would remain.

The No Action Alternative is not considered a reasonable alternative because it does not meet the basic purpose and need to reduce congestion and improve safety. However, it does provide a baseline condition against which the impacts of the Proposed Action can be assessed.


Proposed Action - VDOT Alternative A
RICHMOND HY
OLD COLCHESTER RD
Pohick Church
Clearing and Grading Limits
Proposed Pavement Edge
Existing Pavement
N
W
E
S
0 30 60 90 120 Feet
0 10 20 30 40 Meters
Figure 2-1


Alternative I – 4 lanes, 250-foot (76.2-m) Queue and Taper
RICHMOND HY
OLD COLCHESTER RD
Pohick Church
Existing Pavement
Proposed Edge of Pavement
Proposed Clearing Limits
N
W
E
S
0 30 60 90 120 Feet
0 10 20 30 40 Meters

Figure 2-2


Alternative II – 3 lanes, 250-foot (76.2-m) Queue and Taper
RICHMOND HY
OLD COLCHESTER RD
Pohick Church
Proposed Edge of Pavement
Existing Pavement
Proposed Clearing Limits
N
W
E
S
0 30 60 90 120 Feet
0 10 20 30 40 Meters

Figure 2-3


Alternative III – 3 lanes, 250-foot (76.2-m) Queue and Taper and Retaining Wall
RICHMOND HY
OLD COLCHESTER RD
Pohick Church
Existing Pavement
Proposed Clearing Limits
Proposed Edge of Pavement
Retaining Wall
N
W
E
S
0 30 60 90 120 Feet
0 10 20 30 40 Meters

Figure 2-4